

Amendment After Final Rejection dated October 12, 2004
In response to Final Office Action mailed July 26, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A balloon catheter, comprising:
 - a) an elongated shaft with proximal and distal shaft sections, and an inflation lumen extending therein, and with
an outer tubular member having a longitudinal dimension and an inner surface defining at least a portion of the inflation lumen, and an inner tubular member disposed at least in part within the inflation lumen, the inner tubular member having an inner lumen configured for slidably receiving a guidewire therein, the outer tubular member having at least two secured portions formed by the inner surface of the outer tubular member being bonded to the outer surface of the inner tubular member, the secured portions being separated from each other by sections of the inflation lumen and being radially adjacent to unsecured portions of the outer tubular member formed by the inner surface of the outer tubular member being not bonded to the outer surface of the inner tubular member, and so that the inner surface and not the outer surface of the outer tubular member at the unsecured portions radially adjacent to the secured portions define together with the outer surface of the inner tubular member define sections of the inflation lumen in fluid communication with each other via a section of the inflation lumen defined at least in part by the outer tubular member located proximal to at least one of the secured portions, and the secured portions of the outer tubular member have a longitudinal dimension substantially shorter than the longitudinal dimension of the outer tubular member; and
 - b) an inflatable balloon on the distal shaft section and in surrounding relation thereto having proximal and distal ends, an intermediate section longitudinally

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disposed between the balloon proximal and distal ends, and an interior chamber in fluid communication with the inflation lumen.

2. (Previously Presented) The catheter of Claim 1 wherein the longitudinal dimension of at least one of the at least two secured portions is about 1 to about 4 mm.

3. (Previously Presented) The catheter of Claim 2 wherein the longitudinal dimension of at least one of the at least two secured portions is about 2 to about 4 mm.

4. (Previously Presented) The catheter of Claim 1 wherein the longitudinal dimension of at least one of the at least two secured portions is about 1 to about 2 mm.

5. (Previously Presented) The catheter of Claim 1 wherein at least one of the at least two secured portions has a radial dimension ranging from about 0.5 to about 3 mm.

6. (Previously Presented) The catheter of Claim 1 wherein at least one of the at least two secured portions has a radial dimension ranging from about 1 to about 2 mm.

7. (Previously Presented) The catheter of Claim 1 wherein at least one of the at least two secured portions is proximally spaced apart from the balloon proximal end in a range up to about 3 mm.

8. (Previously Presented) The catheter of Claim 1 wherein at least one of the at least two secured portions is proximally spaced apart from the balloon proximal end in a range up to about 1 mm.

9. (Cancelled)

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10. (Previously Presented) The catheter of Claim 1 wherein the secured portions are located along the same length of the catheter.

11. (Previously Presented) The catheter of Claim 1 wherein the secured portions are longitudinally spaced apart.

12. (Previously Presented) The catheter of Claim 1 wherein the secured portions are disposed radially at substantially equal distance from one another.

13. (Previously Presented) The catheter of Claim 1 wherein the inner surface of the outer tubular member is formed of a first material and the outer surface of the inner tubular member is formed of a second material, the first and second materials being bondable to one another.

14. (Previously Presented) The catheter of Claim 13 wherein the first and second materials are bondable to one another upon the application of heat.

15. (Original) The catheter of Claim 1 wherein the inflatable balloon is configured to receive a deployable device thereon.

16. (Original) The catheter of Claim 1 wherein the catheter is a stent delivery catheter including a stent disposed on at least a portion of the balloon intermediate section.

17. (Withdrawn) A method for forming a balloon catheter, comprising:
providing a balloon catheter having an elongated shaft with proximal and distal shaft sections and an inflation lumen extending therein, an inflatable balloon on the distal shaft section and in surrounding relation thereto having proximal and distal ends, an intermediate section longitudinally disposed between the balloon proximal and distal ends, and an interior chamber in fluid communication with the inflation lumen, and an

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outer tubular member and an inner tubular member disposed within at least a portion of the outer tubular member, the outer and inner tubular members defining at least a portion of the inflation lumen, the inner tubular member having an inner lumen for slidably receiving a guidewire therein;

providing a tubular member having proximal and distal ends and at least one cutaway strip extending from the tubular member distal end to a location proximal to the tubular member distal end;

disposing a hollow mandrel over the inner tubular member within the outer tubular member, the distal end of the tubular member being distal to the balloon proximal end;

providing a protective sleeve at a distal portion of the distal shaft sections housing at least a portion of the mandrel including the cutaway strip;

providing substantially monochromatic energy at a wave length of maximum spectral absorption of the materials forming at least the inner surface of the outer tubular member and at least the outer surface of the inner tubular member;

controllably directing the monochromatic energy onto a predetermined length of the distal portion of the catheter distal shaft section to concentrate the monochromatic energy to form a juncture between a portion of the outer tubular member and a portion of the inner tubular member;

melting the materials of at least the outer surface of the inner tubular member and the inner surface of the outer tubular member along the juncture;

allowing the previously melted materials to cool and solidify to form a bond between the outer tubular member and the inner tubular member;

removing the protective sleeve and the mandrel.

18. (Withdrawn) The method of Claim 17 wherein the mandrel is dimensioned to have an outer diameter sufficiently smaller than an inner diameter of the outer tubular member and an inner diameter sufficiently larger than an outer diameter of the inner

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tubular member to be slidably received within the outer tubular member over the inner tubular member.

19. (Withdrawn) The method of Claim 18 wherein the mandrel has a cutaway strip extending from a mandrel distal end 115 to a location proximal to the thereto.

20. (Withdrawn) The method of Claim 19 wherein the mandrel has at least two cutaway portions.

21. (Withdrawn) The method of Claim 17 wherein the mandrel is formed of a material which is permanently not bondable to at least the inner surface of the outer tubular member and the outer surface of the inner tubular member.

22. (Withdrawn) The method of Claim 21 wherein the mandrel is formed of a material selected from the group including stainless steel, 304v stainless steel, coated stainless steel, Teflon coated stainless steel, pyrelene coated stainless steel, NiTi alloy, MP35N, Elgiloy, braided polyimide, polyetheretherketone, polyetherketone, and polyketone.

23. (Previously Presented) The catheter of Claim 10 wherein the secured portions are disposed radially at substantially equal distance from one another.

24. (New) A balloon catheter, comprising:

a) an elongated shaft with a proximal shaft section, a distal shaft section, an inflation lumen, and with

i) an outer tubular member formed of a polymeric material and having a longitudinal dimension;

ii) an inner tubular member formed of a polymeric material and disposed within the inflation lumen along at least the distal shaft section so that inflation

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lumen along the distal shaft section is defined by the inner surface of outer tubular member together with the outer surface of the inner tubular member, the inner tubular member having an inner lumen configured for slidably receiving a guidewire therein; and

iii) at least two secured portions formed by an inner surface of the outer tubular member being directly bonded to an outer surface of the inner tubular member by a heat-bond between the polymeric material of the outer tubular member and the polymeric material of the inner tubular member, the secured portions being separated from each other by sections of the inflation lumen and being radially adjacent to unsecured portions of the outer tubular member formed by the inner surface of the outer tubular member being not bonded to the outer surface of the inner tubular member, so that sections of the inflation lumen along the unsecured portions are in fluid communication with each other via a section of the inflation lumen located proximal to at least one of the secured portions, and the secured portions of the outer tubular member have a longitudinal dimension substantially shorter than the longitudinal dimension of the outer tubular member; and

b) an inflatable balloon on the distal shaft section and in surrounding relation thereto having proximal and distal ends, an intermediate section longitudinally disposed between the balloon proximal and distal ends, and an interior chamber in fluid communication with the inflation lumen.

25. (New) The balloon catheter of claim 24 wherein the at least two secured portions are longitudinally and radially spaced apart.